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10/527,395	10/12/2005	Dietmar Erich Bernhard Lilie	033794/290043	8634

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EXAMINER

BOBISH, CHRISTOPHER S

ART UNIT	PAPER NUMBER
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3746

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04/01/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/527,395	Applicant(s) LILIE, DIETMAR ERICH BERNHARD	
	Examiner CHRISTOPHER BOBISH	Art Unit 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 March 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 and 15-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 15-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

The amendment filed on 03/12/2009 under 37 CFR 1.131 has been considered but is ineffective to overcome the Schwartz, Hvilsted and David references.

Claims 9-10, 13-14 and 16-19 have been cancelled; new claim 20 has been added. Therefore claims 1-8, 11-12, 15 and 20 are pending.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dolz (US Patent No. 4,474,537) in view of Hvilsted et al (US Patent No. 4,846,048).

Dolz teaches:

From claim 11:

fluid transfer plate applicable to a fluid pump (**FIG. 4**) comprising: a valve plate (**27**); and a plate (**21**) provided with a through bore (**40**) for association with a protector (**41**) that cooperates with the bore; the protector comprising at least one sensor cavity (**C. 9 Lines 20-21**) configured for receiving an inductive sensor (**43**,

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44, 45) therein; and the plate comprising recesses (**screws 42 hole the protector in recesses as can be seen in FIG. 2)** for fixing the protector, the protector comprising protuberant ends (**ends of protector 41 through which screws 42 are fastened**) and being fixed to the valve plate by means of a sealing joint (**screws 42 create a joint in the recesses holding the protector**), the protuberant ends being associable with the recesses in the valve plate;

Dolz teaches a piston position sensing sensor, however the location of the sensor is taught as being located on a sidewall and not taught as being on a transfer plate, but Hvilsted teaches a sensor at this location.

Hvilsted teaches:

a sensor assembly that includes an inductive sensor, **FIG. 1 (10), FIG. 2 C. 2 Lines 15-37**, associated with a fluid-transfer plate/valve plate, **FIG. 1 (11)**, a through-bore, **C. 2 Lines 17-19**, for association of a protector, **FIG. 2 (19) C. 2 Lines 38-39**, that cooperates with the bore;

It would have been obvious to one having ordinary skill in the art of pumps at the time of the invention to place the sensor at any point in a cylinder in order to measure the position of a piston within the cylinder, Hvilsted C. 1 Lines 15-21, since it has been held that rearranging of parts involves only routine skill in the art.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schwarz et al (US Patent No. 6,663,348 B2) in view of Hvilsted et al (US Patent No. 4,846,048) in view of David (US Patent No. 4,662,177).

Schwarz teaches:

From claim 15:

a fluid pump and sensor assembly comprising: a piston, **FIG. 1 (5) C. 4 Line 27**, that is axially displaceable within a cylinder, **FIG. 1 (6) C. 4 Lines 26-28**; the cylinder (**6**) comprising a cylinder closing fluid-transfer plate, **FIG. 1 (~9)**; the piston being displaced towards the fluid-transfer plate and capturing gas or fluid from a low-pressure environment, **C. 4 Lines 26-31**;

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Schwarz teaches a piston position sensing sensor, **C. 5 Lines 36-40**, however the location of the sensor is not taught as being on a transfer plate, but Hvilsted teaches a sensor at this location.

Hvilsted teaches:

a sensor assembly that includes an inductive sensor, **FIG. 1 (10), FIG. 2 C. 2 Lines 15-37**, associated with a fluid-transfer plate/valve plate, **FIG. 1 (11)**, a through-bore, **C. 2 Lines 17-19**, for association of a protector, **FIG. 2 (19) C. 2 Lines 38-39**, that cooperates with the bore, the sensor being positioned in contact with a low-pressure environment, **the portion of the sensor inside the bore is open to low pressure at the side where conductors (18) exit the bore as can be seen from FIG. 1 and FIG. 2;**

a protector **(19)** comprising at least one sensor cavity, **see FIG. 2 below as adapted by examiner**, for associating an inductive sensor;

a sensor being installed on a protector, **FIG. 2 shows a position sensing device (14, 15, 16, 17, 20), being fixed to the right against a protector (19);**

It would have been obvious to one having ordinary skill in the art of pumps at the time of the invention to combine the piston sensing device of Hvilsted with the device of Schwarz in order to create a more secure and reliable sensor, C. 3 Lines 8-17 of Hvilsted.

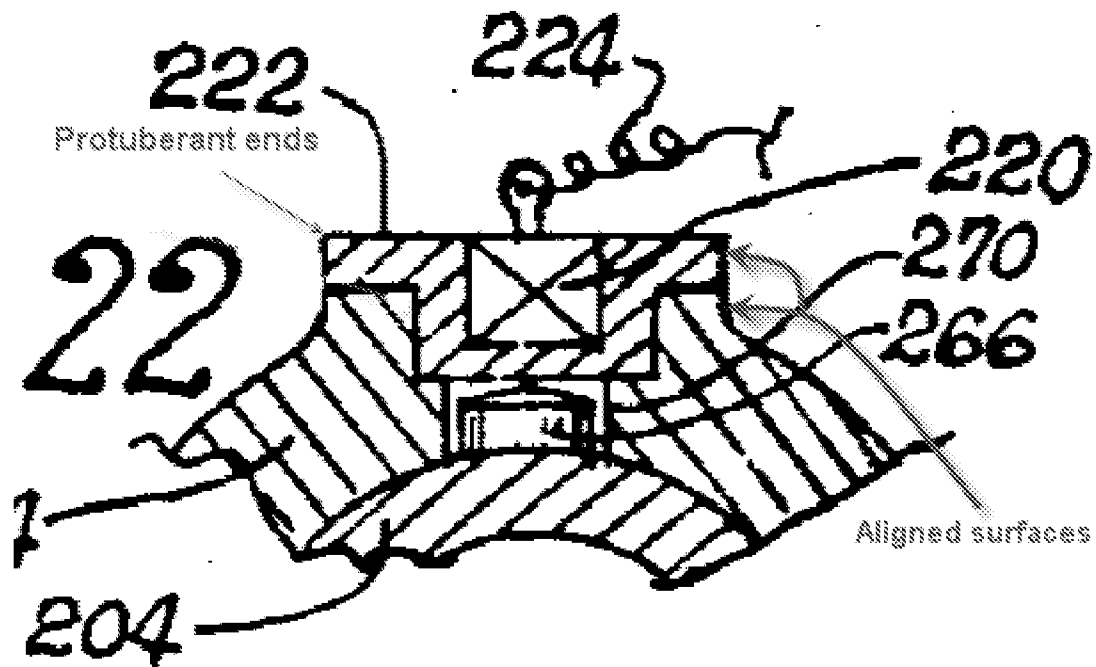
It would have been obvious to one having ordinary skill in the art of pumps at the time of the invention to place the sensor at any point in a cylinder in order to measure the position of a piston within the cylinder, Hvilsted C. 1 Lines 15-21, since it has been held that rearranging of parts involves only routine skill in the art.

Neither Schwartz nor Hvilsted teaches a protector having protuberant ends aligned with an outer surface of a plate, but David does.

David teaches:

a sensor, **FIG. 22 (220) C. 12 Lines 22-23**, and a protector, **FIG. 22 (222) C. 12 Lines 23-25**, comprising protuberant ends, **as seen below in FIG. 22 as adapted by the examiner**, wherein said protuberant ends are aligned with an outer surface of a plate **(see FIG. 22 below, wherein the walls of the raised protector seat are aligned with an outer side of the protector);**

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It would have been obvious to one having ordinary skill in the art of pumps at the time of the invention to combine the sensor protector taught by David with the pump taught by Schwarz and modified by Hvilsted in order to create a more secure and protected sensor mechanism.

Claims 1-8, 11, 12 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schwarz et al (US Patent No. 6,663,348 B2) in view of Hvilsted et al (US Patent No. 4,846,048) in view of David (US Patent No. 4,662,177) in view of Dolz (US Patent No. 4,474,537).

Schwarz teaches:

From claims 1 and 11:

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a fluid pump and sensor assembly comprising: a piston, **FIG. 1 (5) C. 4 Line 27**, that is axially displaceable within a cylinder, **FIG. 1 (6) C. 4 Lines 26-28**; the cylinder **(6)** comprising a cylinder closing fluid-transfer plate, **FIG. 1 (~9)**; the piston being displaced towards the fluid-transfer plate and capturing gas or fluid from a low-pressure environment, **C. 4 Lines 26-31**;

Schwarz teaches a piston position sensing sensor, **C. 5 Lines 36-40**, however the location of the sensor is not taught as being on a transfer plate, but Hvilsted teaches a sensor at this location.

Hvilsted teaches:

a sensor assembly that includes an inductive sensor, **FIG. 1 (10), FIG. 2 C. 2 Lines 15-37**, associated with a fluid-transfer plate/valve plate, **FIG. 1 (11)**, a through-bore, **C. 2 Lines 17-19**, for association of a protector, **FIG. 2 (19) C. 2 Lines 38-39**, that cooperates with the bore, the sensor being positioned in contact with a low-pressure environment, **the portion of the sensor inside the bore is open to low pressure at the side where conductors (18) exit the bore as can be seen from FIG. 1 and FIG. 2**;

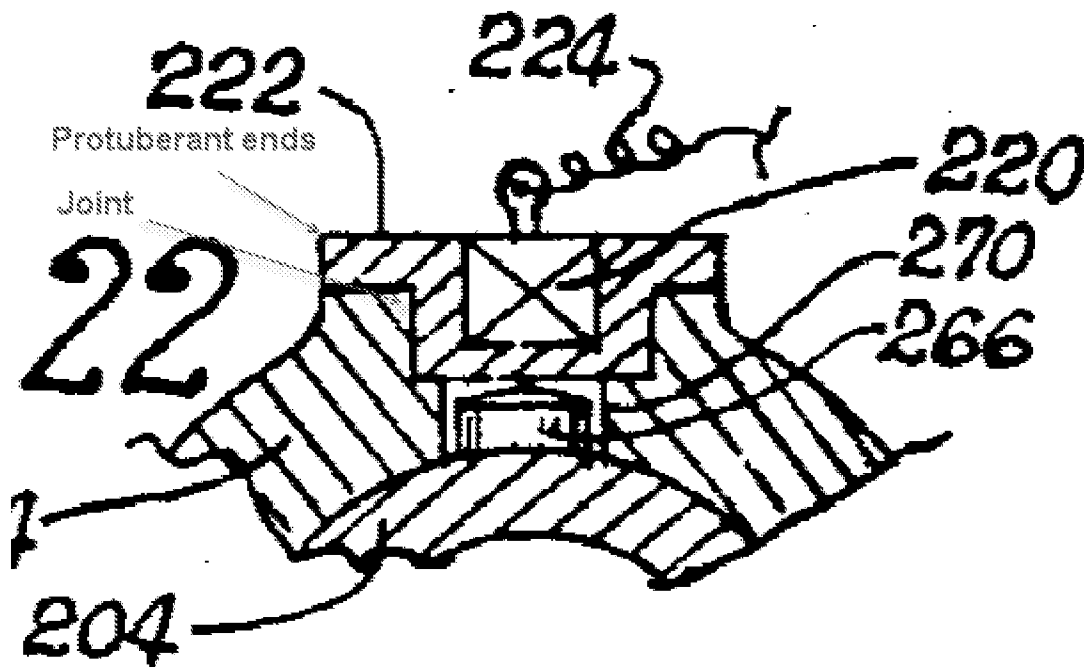
It would have been obvious to one having ordinary skill in the art of pumps at the time of the invention to combine the piston sensing device of Hvilsted with the device of Schwarz in order to create a more secure and reliable sensor, C. 3 Lines 8-17 of Hvilsted.

It would have been obvious to one having ordinary skill in the art of pumps at the time of the invention to place the sensor at any point in a cylinder in order to measure the position of a piston within the cylinder, Hvilsted C. 1 Lines 15-21, since it has been held that rearranging of parts involves only routine skill in the art.

Neither Schwartz nor Hvilsted teaches a sealing joint provided with the transfer plate, but David does.

a sensor, **FIG. 22 (220) C. 12 Lines 22-23**, and a protector, **FIG. 22 (222) C. 12 Lines 23-25**, comprising protuberant ends, **as seen below in FIG. 22 as adapted by the examiner**, forming a joint;

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It would have been obvious to one having ordinary skill in the art of pumps at the time of the invention to combine the sensor protector taught by David with the pump taught by Schwarz and modified by Hvilsted in order to create a more secure and protected sensor mechanism.

Neither Schwartz nor Hvilsted nor David teaches a protector being between a sealing joint and a plate, but Dolz does.

Dolz teaches:

and a plate (21) provided with a through bore (40) for association with a protector (41) that cooperates with the bore; the protector comprising at least one sensor cavity (C. 9 Lines 20-21) configured for receiving an inductive sensor (43, 44, 45) therein; the protector comprising protuberant ends being fixed to the valve plate by means of a sealing joint wherein the protuberant ends are associable with the recesses (screws 42 create a joint in the recesses holding the protector); and the protector is fixed between the sealing joint and the plate (the protector 41 will be fixed between the screw heads 42 and the plate 21);

It would have been obvious to one having ordinary skill in the art of pumps at the time of the invention to provide the sealing joint means taught by

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Doze in the pump and sensor assembly taught by Schwartz and modified by Hvilsted and David in order to strengthen the seal by using screws.

Schwartz, Hvilsted, David and Doze disclose and teach of the fluid pump in claim 1.

Dolz further teaches:

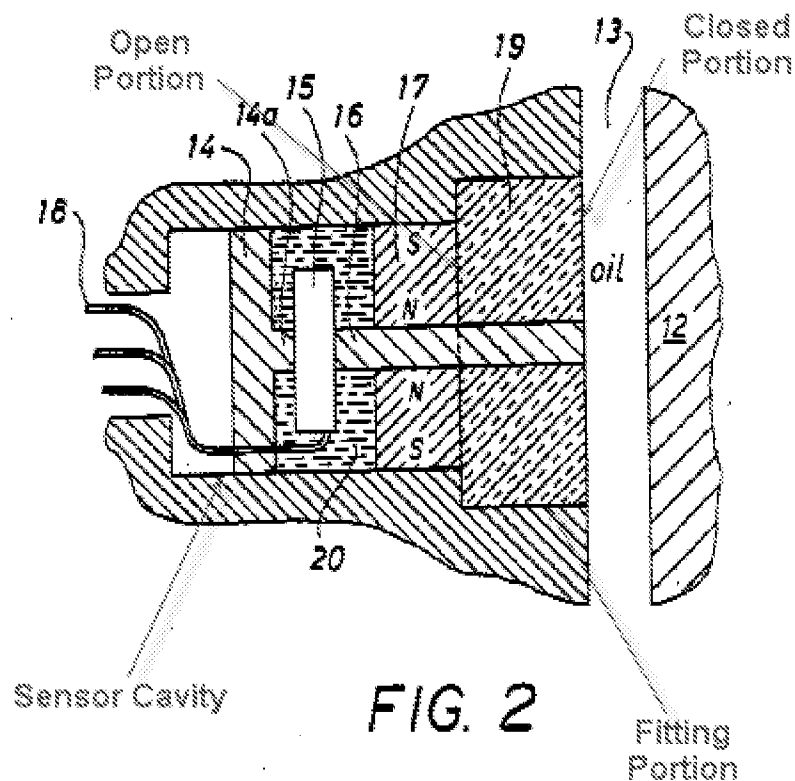
limitations from claim 20, wherein the edges of the sealing joint (**edges where the screw heads for a joint with the plate 21**) are place substantially over the protuberant ends (**the edges rest on top of the protuberant ends of protector 41, as can be seen at the top and bottom of the protector as shown in FIG. 3**);

Schwartz, Hvilsted, David and Doze disclose and teach of the fluid pump in claim 1.

Hvilsted further teaches:

limitations from claim 2, a protector (**19**) comprising at least one sensor cavity, **see FIG. 2 below as adapted by examiner**, for associating an inductive sensor;

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limitations from claim 3, an inductive sensor emits a magnetic field in the direction of a piston, **FIG. 1 (12), FIG. 3 and FIG. 4 C. 1 Lines 33-58;**

limitations from claims 4 and 12, a protector comprises a fitting portion, an open portion, and a closed portion, the fitting portion being cooperatively associated with a bore, the closed portion aligning with the inner face of a cylinder (11), and the open portion comprising a sensor cavity, **see FIG. 2 above as adapted by the examiner;**

limitations from claim 5, an open portion of a protector (19) is in contact with a low-pressure environment, **the left side of FIG. 2 above near the conductors (18),** and a closed portion is in contact with a high-pressure environment, **the right side of FIG. 2 above where the oil exists and will be compressed;**

Schwarz and Hvilsted teach and disclose of the pump from claims 1-4.

Schwarz further teaches:

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limitations from claim 5, a valve plate, **FIG. 1 (9) C. 4 Line 35**, comprises a suction valve associated with a low-pressure environment and a discharge valve associated with a high-pressure environment, **see FIG. 1 below as adapted by the examiner;**

When combined, the sensor and protector taught by Hvilsted and the valves taught by Schwarz will be associated with the same high and low pressure environments on either side of a plate (~9).

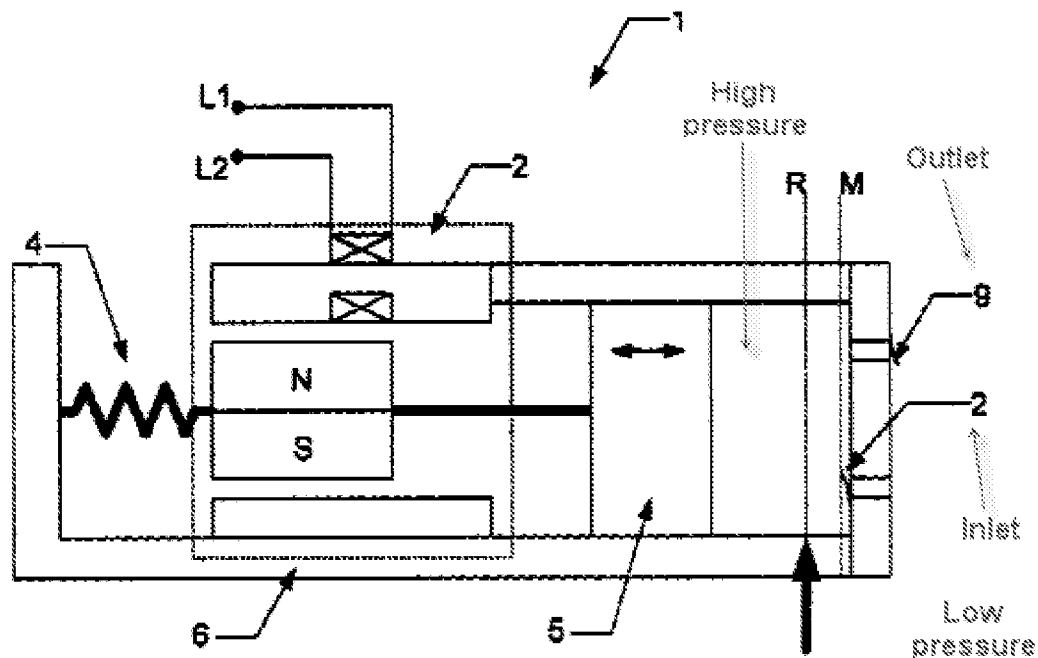


FIG. 1

Schwarz and Hvilsted teach and disclose of the pump from claims 1-5, 11-12 and 15-17.

Hvilsted further teaches:

limitations from claim 6, a protector (**19**) has substantially the same shape as a cavity, **the cavity shown in FIG. 2 and the protector both appear to have a similar cylindrical shape;**

limitations from claim 7, a protector (**19**) is built with a material having low magnetic permeability, **C. 2 Lines 38-39 and Line 64;**

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limitations from claim 8, a sensor is fixed to the closed portion of the protector, **FIG. 2 shows a position sensing device (14, 15, 16, 17, 20), being fixed to the right against a protector (19);**

Response to Arguments

Applicant's arguments with respect to claims 1, 11 and 15 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTOPHER BOBISH whose telephone number is (571)270-5289. The examiner can normally be reached on Monday through Thursday, 7:30 - 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on (571)272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Christopher Bobish/
Examiner, Art Unit 3746

/Devon C Kramer/
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